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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,439	10/14/2003	Hirofumi Konishi	47434-00053	6874
7590 11/17/2004				
Sung I. Oh, Esq. Squire, Sanders & Dempsey, L.L.P. 14th Floor 801 S. Figueroa Street Los Angeles, CA 90017		EXAMINER JEFFERY, JOHN A		
		ART UNIT PAPER NUMBER		
		3742		
DATE MAILED: 11/17/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Y/W

<b>Office Action Summary</b>	<b>Application No.</b> 10/686,439	<b>Applicant(s)</b> KONISHI, HIROFUMI	
	<b>Examiner</b> John A. Jeffery	<b>Art Unit</b> 3742	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☐ Responsive to communication(s) filed on \_\_\_\_.

2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-44 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-3, 5-11, 13-20, 22-27, 29, 30 and 32-44 is/are rejected.

7) ☒ Claim(s) 4, 12, 21, 28 and 31 is/are objected to.

8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 14 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☒ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>20041014, 20040109</u> .	6) <input type="checkbox"/> Other: ____.

U.S. Patent and Trademark Office  
PTOL-326 (Rev. 1-04)

Office Action Summary

Part of Paper No./Mail Date 20041110

## **DETAILED ACTION**

### ***Title of Invention***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Cartridge-Type Soldering Iron With Inert Gas Emitted Near the Tip."

### ***Abstract***

The abstract of the disclosure is objected to because of the following informalities:

In line 1, "This invention provides a soldering iron that" must be changed to "A soldering iron" for brevity. In line 9, "pass" must be changed to "passes." Correction is required. See MPEP § 608.01(b).

### ***Disclosure Objections***

The disclosure is objected to because of the following informalities:

In Para. 0009, (1) "pass" must be changed to "passes" and (2) "emit" changed to "is emitted" for proper grammatical form. Appropriate correction is required.

### ***Drawing Objections***

The drawings are objected to because of the following informalities:

Figs. 4, 6, and 7: All subfigures must each be assigned a separate figure label (e.g., Fig. 4A, Fig. 4B, etc.). See 37 CFR 1.84(u)(1). Applicant is reminded to amend the specification accordingly in conjunction with the drawing changes.

Figs. 6 and 7: All legends indicating cross-section (e.g., "A-A cross section," etc.) must be deleted. Also, the cross-section identification arrows must be labeled with the associated cross sectional figure in accordance with 37 CFR 1.84(h)(3). For example, in Fig. 6, the double arrow legend "A-A" must be changed to "6C-6C." Similar occurrences must also be changed.

The drawings are also objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the color-coded outer cylindrical body claimed in claim 17 must be shown or the feature(s) canceled from the claim(s). A textual legend adjacent the outer cylindrical body indicating such color-coding would be sufficient. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claims 4, 17-23, and 40-44 are objected to because of the following informalities:

Claim 4: In line 3, "couple" must be changed to "coupled."

Claim 17: In line 4, "a" must be inserted after "with."

Claims 18 and 40: In line 2, "based" must be changed to "base."

Claim 41: In line 1, "through" must be changed to "with" for clarity. Both occurrences of "passing" in lines 4 and 5 must be changed to "directing" respectively for clarity.

Claim 43: In line 2, "handle" must be changed to "facilitate handling" for clarity.

Appropriate correction is required.

### ***Claim Rejections - 35 U.S.C. § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14, 15, 22, 23, 34, 40, and 42 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their

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invention. The test for definiteness under 35 U.S.C. § 112, second paragraph is whether “those skilled in the art would understand what is claimed when the claim is read in light of the specification.” *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986).

Claim 14: Claim 14 has no period at the end of the claim and is therefore incomplete. Consequently, even when read in light of the specification, it is unclear whether the claim was intended to terminate at the word “cartridge” or continue with additional language. The examiner presumes the omission was a typographical error for examination purposes.

Claims 22 and 23: Both claims depend from claim 27. But such dependency is inconsistent with the preamble of claims 22 and 23 calling for “[t]he system according to claim 27.” The preamble of claim 27, however, calls for “the cartridge-type iron.” Compare the claims ultimately depending from independent claim 1 with claims ultimately depending from independent claim 24. To correct this ambiguity and ensure proper antecedent basis for the recited structure, the examiner presumes that applicant intended claims 22 and 23 to each depend from claim 21 for examination purposes.

Claim 34: In line 1, no antecedent basis exists for “the grip handle.” For examination purposes, the examiner presumes claim 34 was intended to depend from claim 33 (broadest claim positively reciting a grip handle).

Claim 37: In line 1, no antecedent basis exists for “the gas chamber.” Accordingly, the examiner presumes claim 37 was intended to depend from claim 36 for examination purposes.

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Claim 40: In lines 2-3, no antecedent basis exists for "the plurality of connection terminals." For examination purposes, the examiner presumes claim 40 was intended to depend from claim 39 (broadest claim positively reciting a plurality of connection terminals).

Claim 42: The recitation of "providing power to the tip end of the heater cartridge" (emphasis added) is inconsistent with the disclosure and is therefore vague and indefinite. As best understood by the examiner, power is applied to the base end of the heater cartridge -- not the tip end. See claim 39 and terminals 16a, 16b on the base end of the heater cartridge in Fig. 2 of the instant disclosure. Accordingly, the examiner presumes applicant intended for the claim to recite providing power to the base end of the heater cartridge for examination purposes. Correction is required.

### ***Claim Rejections - 35 U.S.C. § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 6, 7, 18, 24, 25, 29, 33, 35, and 41-44 are rejected under 35 USC 102(b) as being anticipated by Fortune (US 5,483,040). The scope and breadth of the claim language did not preclude the citation of Fortune (US 5,483,040) who in Figs. 1-3 discloses a soldering iron comprising soldering tip 42, "heater cartridge" 14 with a channel formed therein so that gas is heated while passing therethrough, "gas injector"

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28, 30, 26 coupled to the heater cartridge to introduce gas therein, and "exhaust pipe" 24 enclosing a portion of the heater cartridge via screw threads (i.e., the "mounting part" of claim 2). Note the tapered wall 46 of the "exhaust pipe" that functions as a baffle for directing gas between the exhaust pipe and the tip.

Claims 1, 2, 5-9, 13, 18, 20, 24, 25, 29, 32, 33, 35-37, 41, and 43 are rejected under 35 USC 102(b) as being anticipated by JP2001-347369. JP2001-347369 discloses in Figs 5 a soldering iron comprising tip 22b, "heater cartridge" 20, 22 with a channel formed therein so that gas is heated by heater 21 while passing therethrough, a "gas injector" coupled to the heater cartridge to introduce gas therein (note gas flow arrows leading from apertures 20a in Fig. 5), and "exhaust pipe" 38, 38a enclosing a portion of the heater cartridge, said exhaust pipe providing a gas flow passage. "Mounting part" comprises (1) member 13, and (2) surrounding mating box nut that is adapted to couple to the exhaust pipe 38. The box nut engages with radial flange 38b.

### ***Claim Rejections - 35 U.S.C. § 103(a)***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

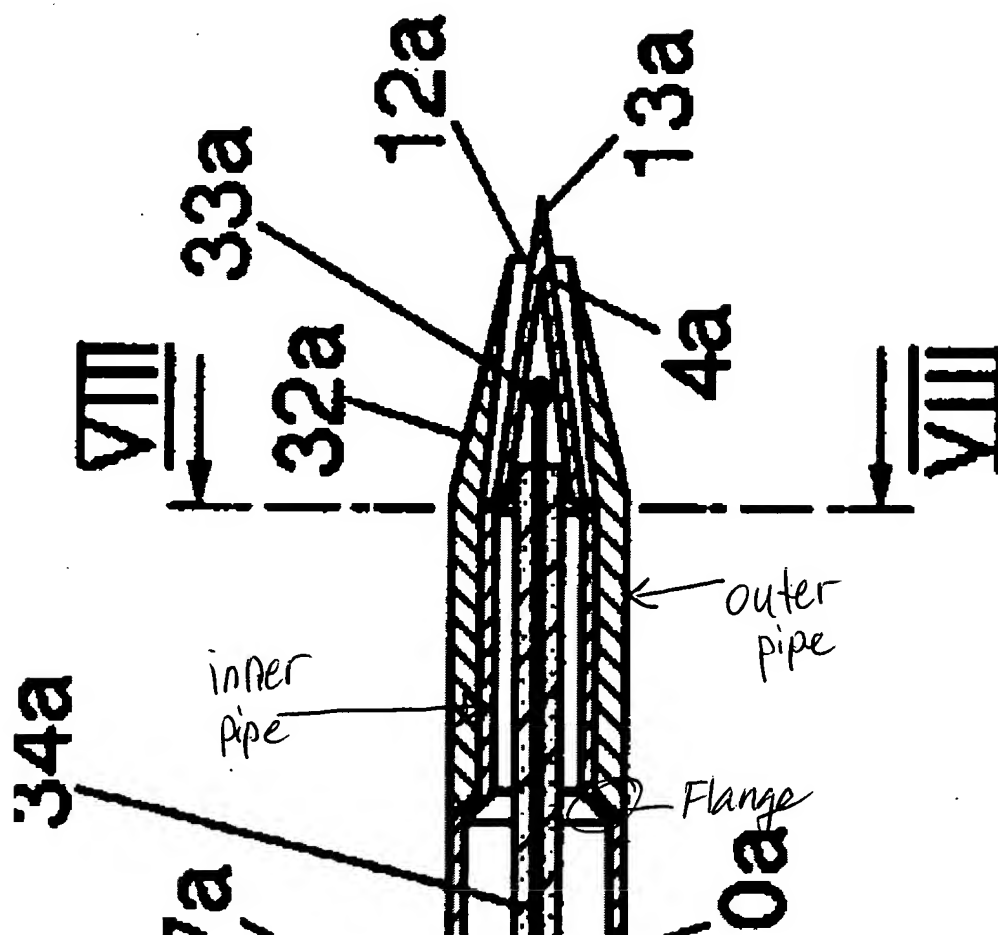
A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.



Claims 3, 10, 26, 27, 30, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fortune (US 5,483,040) or JP2001-347369 in view of EP536472. The claims differ from the previously cited prior art in calling for a heating part partially disposed within the tip. But providing heating portions and sensors within tip portions of soldering irons is well known in the art. EP536472, for example, provides a "heating part" 3a that heats the tip and temperature sensor 33a disposed within the tip portion 20. See Fig. 6. Such a structure not only more quickly heats the tip by apply heat directly to the tip, it also more accurately senses the tip temperature by locating the sensor adjacent the tip. In view of EP536472, it would have been obvious to one of ordinary skill in the art to provide a heating part and sensor at least partially within the tip in the previously described apparatus to not only more quickly heat the tip by concentrating heat at the tip, but also more accurately sense the tip temperature by locating the sensor adjacent the tip.

Regarding claims 26 and 27, note "outer pipe" 32a and coaxial "inner pipe" with flange illustrated below in a reproduction of Fig. 6 of EP536472:



In view of EP536472, it would have been obvious to one of ordinary skill in the art to provide an outer and inner pipe structure for the exhaust pipe of the previously described apparatus to create a narrow circumferential airflow path adjacent the soldering tip.

Claims 11, 16, 17, 19, 34, 39, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fortune (US 5,483,040) or JP2001-347369 in view of Fortune

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(US 4,926,028). The claims differ from the previously cited prior art in calling for a grip handle comprising inner and outer cylindrical bodies with low thermal conductivity. Providing a grip handle with insulative coaxial cylindrical bodies is well known in the art. Fortune (US 4,926,028), for example, discloses in Fig. 3 a "grip handle" 36 comprising inner cylindrical body 43 and outer replaceable cylindrical body 36 covering the inner cylindrical body. Such an arrangement not only facilitates replacement of the grip, it also reduces heat transfer to the user's hand thus promoting safer operation. In view of Fortune (US 4,926,028), it would have been obvious to one of ordinary skill in the art to provide a grip with inner and outer cylindrical bodies in the previously described apparatus to not only facilitate grip replacement, but also minimize heat transfer to the user's hand thus promoting safer operation.

Regarding claim 17, no criticality is seen in the use of color-coded outer cylindrical bodies; moreover, color coding is a well-known technique to promptly identify and select replacement parts. Moreover, no criticality is seen in the specific materials claimed for the inner and outer bodies. Accordingly, the features are not patentably distinguishable over the insulative inner and outer cylindrical bodies comprising the grip handle of the prior art soldering iron.

Regarding claim 19, note the "handle base" of Fortune (US 4,926,028) comprising "first part" 43 and "second part" 51 or 55.

Regarding claims 11, 39 and 40, the claims differ from the previously cited prior art in calling for a plurality of connection terminals near the base end of the heater cartridge and a base handle receiving the base end of the heater cartridge. But such

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heater electrical connection structures are well known as evidenced, for example, by Fortune (US 4,926,028). Fortune (US 4,926,028) discloses in Fig. 5 providing two electrical terminals on annular ceramic heating element 67 near the base end of the heater cartridge. Such a structure facilitates providing electric power to the heater at a single end of the heater thus reducing the amount of electrical wiring required. In view of Fortune (US 4,926,028), it would have been obvious to one of ordinary skill in the art to provide multiple electric heater terminals near the base end of the previously described apparatus to electrically power the heater at a single end thus reducing the amount of electrical wiring required to apply power to the heater.

Regarding claim 11, because the electric terminals of Fortune (US 4,926,028) are disposed on a cylindrical ceramic heating element body, the terminals would have at least, in part, an annular profile.

### ***Allowable Subject Matter***

Claims 4, 12, 21, 28, and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 14, 15, 22, and 23 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112 and to include all of the limitations of the base claim and any intervening claims.

***Other Pertinent Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant should (1) separately consider the art, and (2) consider the art together with the previously cited prior art for potential applicability under 35 U.S.C. §§ 102 or 103 when responding to this action.

US 106, US 021, JP 657, JP 475, WO 352 disclose soldering irons with heated gas relevant to the instant invention.

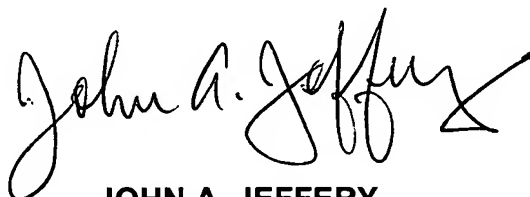
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. Jeffery whose telephone number is (703) 306-4601. The examiner can normally be reached on Monday - Thursday from 7:00 AM to 4:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans, can be reached on (703) 305-5766. All faxes should be sent to the centralized fax number at (703) 872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)

A handwritten signature in black ink, reading "John A. Jeffery". The signature is fluid and cursive, with a long horizontal stroke at the end.

**JOHN A. JEFFERY  
PRIMARY EXAMINER**

**11/12/04**